

PL 7112489

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<p> <u>AG-AG</u>      <u>AG-GL</u>      DNT 22-12-70.          A-115351; +23-08-71/JA-044177 +23-08-71/JA-          64178 +23-08-71/JA-044179, 103.  <u>Japan Teryl Co Ltd.</u>      *NL-7112489-Q.          A47.          C08j-01/08 C08j-01/48 C08c-03/00 (27-12-71).  <b>PIGMENT DISPERSIONS - MADE BY POLYMERISING          COPOLYMERISABLE MONOMERS WITH DYE AND          STABILISER...</b> </p>	<p>G2-A4. <span style="float: right;">41</span></p>
<p> <b>NEW</b>          Full Priority: 22-12-70; 23-8-71; (4)/JA 115351; 64177;          64178; 64179; 64180.          Finely divided pigment dispersions are made by poly-          merising copolymerisable unsatd. monomers (I) in an org.          liquid which dissolves the monomers but not the polymer,          in the presence of a stabiliser which is compatible with or          chemically bonded to the copolymer and which contains a          long hydrocarbon group so that the product can be disper-          sed in low polar or non polar org. liquids, to give a disper-          sion with a particle size of 0.1-5 <math>\mu</math>. The dispersion is          coloured with a dye, pref. a water soluble dye or a dye          complex contg. a material with an electrical charge oppos-          ite to that of the dye.       </p>	<p> <b>USE/ADVANTAGES</b>          Products are stable pigment dispersions useful for col-          ouring plastics such as PVC and printing inks, esp. for          the prodn. of fluorescent colours. Dispersions have          excellent light stability.       </p> <p> <b>DETAILS</b>          Dispersing agent may be non-polar aliphatic or aromat-          ic hydrocarbons such as mineral spirit, kerosine, petrol-          cum naphtha, hexane, cyclohexane, etc. The stabiliser may          be cpds. with an ester grp. and a more than 6C alkyl, such          as hexyl acrylate, dihexyl fumarate, dioctylitaconate, etc.          or polymers of these; polyvinyl esters, liquid polybutadiene;          urethane-treated oils. The unsatd. monomers (I) may          may be (A) those with low affinity for dyes such as n-          propyl(meth)acrylate, styrene, (B) copolymerisable mon-          omers with 1 or 2 CN grps. such as vinylidene cyanide,          with high affinity to dyes; or (C) monomers with a function-          al grp. having high affinity for dyes, such as methallol          sulphonic acid, (meth) acrylic acid, vinyl pyridine, di-          acetoneacrylamide, etc. (basic grps.). The heat and chem-          ical resistance of the copolymer can be improved by the       </p> <p style="text-align: right;">Cont'd 03010T</p>

inclusion of monomer (D) such as diallyl phthalate, divinyl benzene, pentaerythritol tetramethacrylate, etc. Preferred copolymers contain 95/5 to 20/80 A:B, 99/1 to 70/30 A:C, or 90-20/80-5/30-1 A:B:C, opt. with 0.1-5 wt.% D (on A+B+C). Generally the dispersion contains 15-60 wt.% (esp. 25-60 wt.%) A+B+C. Polymer. is initiated with e.g. benzoyl peroxide, AZBN. A wide range of dyes may be used, e.g. amino grp. -contg. dyes with cationic properties in dil acid soln. water sol. dyes contg. sulphonic acid or carboxylic acid grps.; water sol. dyes which are absorbed directly into fibres, water (in)soluble clear fluorescent dyes and dyes contg. no water-soluble grps. and which are soluble in oils and fats, hydrocarbons and molar solvents, mainly of the azo type but also some anthraquinone-, nigrosine- and azine types. The dyes are used at 0.3-25 wt.% on copolymerisable monomers. Dye complexes can be made, esp. by using anionic surface active agents with cationic dyes and brightening agents, or a cationic surface active agent with acid dyes and anionic fluorescent brightening agents. 1-15% of a HClHO contg. polycondensate which is sol. in monomers of type II but not in the org. liquid, may be added to improve the solubility and dispersibility of the pigment dispersions. The light resistance of the products can be increased by adding antioxidants such

as 2,6-di tert. butyl 4-methylphenol and UV absorbers such as phenyl salicylate. Polymer. is carried out at 50-120°C (60-90°C) for 3-20 hrs. (8-12 hrs.).

#### EXAMPLE

A soln. of 459 pts. mineral spirit, 200 pts. soya bean oil modified alkyd resin (oil length 70), 3.5 pts. "Aizene Catilon Orange RH" and 2.0 pts. benzoyl peroxide was stirred at 80°C and a mixture of 200 pts. methyl acrylate and 150 pts. acrylonitrile added, over 4 hrs. Polymer. was continued for 6 hrs. to give an orange pigment dispersion.

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